

IDAHO DEPARTMENT OF FISH & GAME

Jerry M. Conley, Director

OXBOW HATCHERY

Annual Report



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by

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OXBOW HATCHERY

ABSTRACT

A total run of 158 steelhead adults, 3 fall-chinook jacks, 1 fall-chinook adult, and 1 spring-chinook jack were trapped at Hells Canyon Dam. A five-percent prespawning mortality occurred this season. We spawned 69 steelhead females that yielded 365,838 green eggs. There was an 82.5% eye-up of those green eggs.

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OBJECTIVES

The objectives of the Oxbow Hatchery are to:

1. Trap all steelhead and chinook salmon that return to Hells Canyon Dam.
2. Hold adult salmon and steelhead until sexual maturity in the Oxbow holding ponds.
3. Spawn adult steelhead and salmon and incubate eggs to the eyed stage of development.
4. Transfer eyed steelhead and salmon eggs to Niagara Springs and Rapid River Hatchery.
5. Release available steelhead and chinook salmon smolts into the Snake River below Hells Canyon Dam.

INTRODUCTION

The Oxbow Hatchery is located on the Snake River's Hells Canyon Reservoir at Oxbow, Oregon. The hatchery facilities are one-half mile downstream from Idaho Power Company's Oxbow Power Plant. The fish trap is located on the tailrace of Hells Canyon Dam on the Oregon shore of the Snake River, some 20 miles downstream from Oxbow Hatchery.

Oxbow Hatchery is owned and financed by Idaho Power Company.

Water to the hatchery is supplied by four electric pumps which draw from Hells Canyon Reservoir. Two 480 volt pumps supply 7,850 gallons-per-minute to the raceways and holding ponds. Two smaller pumps supply the incubation system with 200 gallons-per-minute. Only one pump of each size is used for normal operation. The other two pumps are used as standby pumps, since they are energized by a separate power supply.

The fish-holding facilities consist of four interconnected ponds with automatic crowders, fish loading and unloading equipment, and adjacent fish-sorting tanks. The four ponds can be separated by fish racks for individual operation, or left interconnected for joint operation. Two ponds are 34x54x8 feet, and the other two are 34x104x8 feet. Normal water depth is 4.5 feet. The ponds can safely hold about 4,000 steelhead adults.

The incubation system consists of a surge tank and two banks of distribution pipes, with space for forty stacks of incubators. There are currently twelve 16-tray Heath incubators available for rearing about 3,000,000 eggs.

Oxbow Hatchery also has six 100x6x3 feet raceways and a 360 foot incubation channel which are not currently used.

Buildings consist of a mobile home residence and a hatchery building. The hatchery building is 30x62 feet. It houses an incubator room, a two-man crew's quarters, office, and a small shop.

The Oxbow Hatchery is normally operated over a 10 month period between September 1980 and June 1981. Fish trapping at Hells Canyon covers the same period. About 60% of the steelhead are trapped in the fall, and 40% are trapped in the spring. The trap is removed in the summer, and in mid-winter when water temperatures prevent fish migration. The trap must also be removed whenever high water flows cause spilling at Hells Canyon Dam. Water turbulence can damage the trap. Fish are trapped at Hells Canyon Dam and transported by Idaho Power.

Spawn-taking operations normally start during the first week of April and are completed by the first week of June. Eyed steelhead eggs are transported to Niagara Springs Hatchery for hatching and rearing to smolts to be planted below Hells Canyon Dam.

FISH PRODUCTION

There were no fish reared at Oxbow Hatchery this year.

FISH HEALTH

Prespawning mortality was five percent this year (four males and four females). Most of these mortalities resulted from fish trapping and sorting operations. In addition, 96 fish died during spawning (62 males and 34 females). This high mortality was due to the poor condition of the fish at spawning time. Most of the fish had heavy infestations of fungus. In addition, Harold Ramsey detected the presence of Aeromonas or Pseudomonas sp. as a systemic bacterial infection in these fish. Malachite green at a concentration of 1/200,000 was applied to any open lesion during the sorting process.

Oregon State University and Oregon Department of Fish and Wildlife conducted a viral study at Oxbow to determine the presence of IPN and IHN, with the goal of obtaining virus-free eggs from the hatchery. The study found a 39% presence of IPN, but no IHN. Oregon did not take any of the eggs as a result of the study.

FISH TRANSFERS

(Thirty-two male steelhead were transferred from Pahsimeroi Fish Hatchery to Oxbow Hatchery on 20 April. These fish were needed because of a shortage of males at Oxbow.

A total of 158 steelhead (115 females, 43 males), 3 fall-chinook jacks, 1 fall-chinook female, and 1 spring-chinook jack were trapped and transported to Oxbow. All chinook were released. The steelhead averaged 26.5 inches. Forty-two percent of all fish trapped were 28 inches or larger (B-run fish). The Hells Canyon fish trap was in operation 190 days during the trapping season, between 15 September 1980 to 5 January 1981 and 10 March to 27 May 1981. A total of 78% of the fish were trapped in the fall, and 22% in the spring (see Table 1).

FISH RELEASES

A total of 191,400 (8,358 lbs) steelhead fingerlings were released at Hells Canyon Dam by the U. S. Fish and Wildlife Service, Hagerman National Hatchery, during late October 1980. Niagara Springs Hatchery released a total of 612,760 (115,300 lbs) steelhead smolts into Hells Canyon during the spring. A fish-unloading pipe was installed on the face of Hells Canyon Dam to facilitate fish planting and to encourage adults to return to the trap. Previously, fish were released at a boat ramp about one-half mile below the trap.

Rapid River Hatchery also released 1,001,700 (47,700 lbs) of spring-chinook smolts at Hells Canyon Dam during March 1981. This is the first release of spring chinook since the construction of the Hells Canyon Complex.

SPAWNTAKING OPERATIONS

Spawning activities started in March and ended in the last week of May. A total of 69 female and 54 male steelhead were spawned. A total of 365,838 green eggs, at 1,580 ounces, averaging 231.5 eggs-per-ounce were taken. A total of 1,344 ounces (310,978) eyed steelhead eggs were shipped to Niagara Springs Hatchery for rearing and hatching. Eye-up was 82.5% of the eggs taken. There was an average of 5,302 eggs per female.

FISH FEED UTILIZED

There was no fish feed used at Oxbow this year.

Table 1. Summary of Hells Canyon Fish Trap operation 1980-1981.

<u>Month</u>	<u>Date installed or removed</u>	<u>Days in operation</u>	<u>Percent total run</u>	<u>Number chinook</u>	<u>Number steelhead</u>
09/80	9/15/80-in	15	8.2%	0	13
10/80	continuous operation	31	55.1%	3 jacks	87
11/80	continuous operation	30	12.7%	1 female	20
12/80	continuous operation	31	2.5%	0	4
01/81	1/05/81-out	5	0.0%	0	0
02/81	out	0	0.0%	0	0
03/81	3/10/81-in	21	0.0%	0	0
04/81	continuous operation	30	15.8%	0	25
05/81	5/27/82-out	27	5.7%	1 jack	9
Totals		190 days	100.0%	5	158

HATCHERY IMPROVEMENTS

Several improvements were made to the hatchery and residence this year. Skirting was installed around the hatchery mobile home to improve thermal efficiency. A major cleanup operation was undertaken to get rid of weeds and debris from the hatchery grounds. The hatchery building was cleaned. New cabinet shelves were made to improve storage. The incubator room was painted. A bell-type phone was installed.

Idaho Power removed the old ice-making machine from the hatchery. They installed six new PVC ball valves on the incubation system, and two new diffuser plates in the holding ponds. They repaired the head-gate structures so that they are now functional. A new replacement fish truck was purchased for hauling steelhead from Hells Canyon. A new fish-unloading pipe was installed at Hells Canyon Dam.

SPECIAL STUDIES

A viral study was conducted this year (see Fish Health).

MISCELLANEOUS ACTIVITIES

There were approximately 2,550 visitors at Oxbow this year. Most visitors were here to see the fish sorting and spawning operations.

(The hatchery crewroom was used for 139 visitor days. These were mostly overnight stays by Idaho Fish and Game personnel, Oregon State Police (Wildlife Enforcement), Oregon Fish and Wildlife personnel, and U. S. Forest Service personnel.

Hatchery personnel attended training sessions in Crash Injury Management and CPR. They also spent six weeks assisting in trapping and spawntaking at Rapid River Hatchery.

ACKNOWLEDGEMENTS

Oxbow Hatchery was staffed by Michael A. Graham, Fish Hatchery Superintendent I. Ken Witty and Ken Spiedel of the Oregon Fish and Wildlife Service assisted in spawn-taking activities this season.